



## **(S//SI) Prototype Collection Systems Deployed to Iraq**

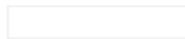
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*The story of how three prototype systems were deployed to the Baghdad area to stay ahead of changing communications (S//SI)*

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(S//SI) Since the fall of the Saddam Hussein regime in Iraq over a year and a half ago, there has been a continuing proliferation of new communications technologies into the region, as well as a morphing enemy of insurgents and foreign fighters. To keep pace with this technology explosion, the Signals Survey and Analysis Division (S3112), in conjunction with the National Reconnaissance Office (NRO), has deployed and installed three prototype signal discovery systems (called SIGINT T-VO) in and around Baghdad.



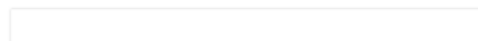
*(S//SI) SIGINT T-VO system installed inside the SIGINT site at Camp Falcon in southern Baghdad*



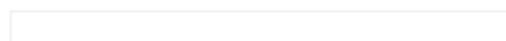
*(S//SI) SIGINT collection site at Camp Falcon. (The taller antenna at center is the TV-O RF antenna; the shorter one just to its left is the T-VO GPS antenna)*

(S//SI) SIGINT T-VO is a high-capacity, wideband digital recording system that is remotely controlled by the GRSOC\* Signals Development Center (SDC). Each system continuously [REDACTED] spectrum utilizing four tunable receivers [REDACTED] and a 16 hour buffer, which allows analysts to retrieve archived data, save to semi-permanent storage, conduct initial analysis, and exfiltrate data files remotely to the GRSOC.

(TS//SI) The primary purpose of the SIGINT T-VO is to do signal discovery in Baghdad -- to search for new, unknown, or variant signals within the VHF/UHF spectrum. To date, this mission has been successful. The GRSOC SDC, utilizing the T-VO, was the first element to collect and report data on a new CDMA\* cellular network used by the Iraqi government; has discovered and resolved four new TDM\* signals; and assisted NSA with the development of their system to exploit the APCO-25 communications system used by Baghdad Police.



*(S//SI) [REDACTED] (Technical Director for S3112) surveys the signal environment at Camp Slayer in Baghdad. Several sites were surveyed to determine the most effective location for SIGINT T-VO.*



*(S//SI) The dome atop 4 Heads Palace in central Baghdad (post-JDAM) with SIGINT T-VO RF antenna protruding through the top.*

(TS//SI) The secondary purpose of the T-VO is to do signal/target development. This mission is still evolving, but the Signals Survey and Analysis Division remains very optimistic about its potential, which includes the capability to geolocate signals of interest. GRSOC SDC is continuing to refine its Concept of Operations (CONOP) to analyze the signals environment surrounding particular events, such as improvised explosive device (IED) detonations, mortar/rocket attacks, ambushes, etc. The SDC analysts pull recorded data from the T-VO to determine what signals were active 10 minutes before and after these events in an attempt to

identify the particular IED detonation signal itself (if applicable) or identify Anti-Iraqi Forces (AIF) command and control communications. This analysis is shared directly with the appropriate target offices at the GRSOC, as well as the 1st Cavalry Division's Analysis and Control Element (ACE) in Baghdad.

(S//SI) The actual deployment of SIGINT T-VO was conducted in two phases, both in conjunction with other NSA missions, including the Army Cryptologic Operations office and MINUTEMAN (S33142). Phase One, conducted from 17 June-20 July 04, included the deployment of one SIGINT T-VO system to Camp Prosperity (aka 4 Heads Palace) adjacent to the Green Zone in central Baghdad. Phase Two, conducted from 24 August-5 October 04, included the deployment of two more T-VO systems, one to Camp Falcon in southern Baghdad and one to Camp Patriot in eastern Baghdad.

[REDACTED]

(S//SI) *Soldiers from D/312th MI Battalion at Four Heads Palace in Baghdad. From left to right:*

[REDACTED] and [REDACTED] with MAJ Eric Toler (from S3112)

(S//SI) The Signals Survey and Analysis Division has many people to thank for their support during the deployments of SIGINT T-VO, to include:

- the Army Cryptologic Operations office and the MINUTEMAN office for deployment support and equipment;
- the National Reconnaissance Office (NRO) for their partnership and equipment;
- the Office of Target Reconnaissance and Survey (OTRS) for equipment and technical support in Iraq;
- the European Technical Center (ETC) for logistical support in Germany;
- Multi-National Forces-Iraq (MNF-I) for their support in getting T-VO into theater; and
- the 312th Military Intelligence Battalion (1st Cavalry Division), for their phenomenal dedication and professionalism while putting their own soldiers at risk to support our mission.

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\*(U) Notes:

GRSOC = Ft Gordon Regional Security Operations Center

CDMA = Code Division Multiple Access

TDM = Time-Division Multiplex

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